

**WHAT IS CLAIMED IS:**

1                   1.       An isolated CLASP-5 polynucleotide, wherein said polynucleotide  
2 is

3                   (a) a polynucleotide that has the sequence of SEQ ID NO:1 or

4                   (b) a polynucleotide that hybridizes under stringent hybridization  
5 conditions to (a) and encodes a polypeptide having the sequence of SEQ ID NO:2 or an  
6 allelic variant or homologue of a polypeptide having the sequence of SEQ ID NO:2; or

7                   (c) a polynucleotide that hybridizes under stringent hybridization  
8 conditions to (a) and encodes a polypeptide with at 25 contiguous residues of the  
9 polypeptide of SEQ ID NO:2; or

10                  (d) a polynucleotide that hybridizes under stringent hybridization  
11 conditions to (a) and has at least 12 contiguous bases identical to or exactly  
12 complementary to SEQ ID NO:1.

1                   2.       The polynucleotide of claim 1 that encodes a polypeptide having  
2 the full-length sequence of SEQ ID NO:2.

1                   3.       The isolated polynucleotide of claim 1, comprising the cDNA  
2 coding sequence of ATCC accession numbers PTA-1565, PTA-1568, PTA-2609 or PTA-  
3 2612.

1                   4.       An isolated CLASP-5 polynucleotide comprising a nucleotide  
2 sequence that has at least 90% percent identity to SEQ ID NO:1.

1                   5.       An isolated polypeptide comprising a nucleotide sequence that has  
2 at least 90% sequence identity to SEQ ID NO:2 and is immunologically crossreactive  
3 with SEQ ID NO:2 or shares a biological function with native CLASP-5.

1                   6.       A vector comprising the polynucleotide of claim 1.

1                   7.       An expression vector comprising the polynucleotide of claim 1 in  
2 which the nucleotide sequence of the polynucleotide is operatively linked with a

1                   8.       A host cell comprising the polynucleotide of claim 1, or a progeny  
2 of the cell.

1 9. A host cell comprising the polynucleotide of claim 1, wherein the  
2 nucleotide sequence of the polynucleotide is operatively linked with a regulatory  
3 sequence that controls expression of the polynucleotide in a host cell, or progeny of the  
4 cell.

1 10. The host cell of claim 8 which is a eukaryote.

1 11. The polynucleotide of claim 1 that is an antisense polynucleotide  
2 less than about 200 bases in length.

1 12. An antisense oligonucleotide complementary to a messenger RNA  
2 comprising SEQ ID NO:1 and encoding CLASP-5, wherein the oligonucleotide inhibits  
3 the expression of CLASP-5.

1 13. An isolated DNA that encodes a CLASP-5 protein as shown in  
2 SEQ ID NO:2.

1 14. The polynucleotide of claim 1 that is RNA.

1 15. A method for producing a polypeptide comprising:  
2 (a) culturing the host cell of claim 8 under conditions such that the  
3 polypeptide is expressed; and  
4 (b) recovering the polypeptide from the cultured host cell or its cultured  
5 medium.

1 16. An isolated polypeptide encoded by a polynucleotide of claim 1.

1 17. The polypeptide of claim 16 that has the amino acid sequence of  
2 SEQ ID NO:2 or a fragment thereof.

1 18. The isolated polypeptide of claim 16, wherein the polypeptide is  
2 cell-membrane associated.

1 19. The isolated polypeptide of claim 16, wherein the polypeptide is

1 20. The polypeptide of claim 17, wherein the polypeptide is fused with  
2 a heterologous polypeptide.

1                    21.     An isolated CLASP-5 protein having the sequence as shown in  
2     SEQ ID NO:2.

1                    22.     A protein comprising the sequence as shown in SEQ. ID. NO:1 and  
2     variants thereof that are at least 95% identical to SEQ ID. NO:2 and specifically binds  
3     spectrin.

1                    23.     An isolated antibody that specifically binds to a polypeptide having  
2     the amino acid sequence as shown in SEQ ID NO:2, or a binding fragment thereof.

1                    24.     The antibody of claim 23, that is monoclonal.

1                    25.     A hybridoma capable of secreting the antibody of claim 24.

1                    26.     A method for identifying a compound or agent that binds a  
2     CLASP-5 polypeptide comprising:

3                    i) contacting a CLASP-5 polypeptide of claim 17 with the compound or  
4     agent under conditions which allow binding of the compound to the CLASP-5  
5     polypeptide to form a complex and

6                    ii) detecting the presence of the complex.

1                    27.     A method of detecting a CLASP-5 polypeptide in a sample,  
2     comprising:

3                    (a) contacting the sample with an antibody or binding fragment of claim 24  
4     and (b) determining whether a complex has been formed between the antibody and with  
5     CLASP-5 polypeptide.

1                    28.     A method of detecting a CLASP-5 polypeptide in a sample,  
2     comprising:

3                    (a) contacting the sample with a polynucleotide of claim 1 or a  
4     polynucleotide that comprises a sequence of at least 12 nucleotides and is complementary  
5     to a contiguous sequence of the polynucleotide of section (a) of claim 1, and (b)

2     comprising:

- 3 (a) using a polynucleotide that comprises a sequence of at least 12  
4 nucleotides and is complementary to a contiguous sequence of the polynucleotide of  
5 section (a) of claim 1, in an amplification process; and  
6 (b) determining whether a specific amplification product has been formed.

1 30. A pharmaceutical composition comprising a polynucleotide of  
2 claim 1, a polypeptide of claim 16, or an antibody of claim 23 and a pharmaceutically  
3 acceptable carrier.

1 31. A method of inhibiting an immune response in a cell comprising:  
2 (a) interfering with the expression of a CLASP-5 gene in the cell;  
3 (b) interfering with the ability of a CLASP-5 protein to bind to another  
4 cell;  
5 (c) interfering with the ability of a CLASP-5 protein to bind to another  
6 protein.

1 32. The method of claim 31, wherein the cell is a T cell or a B cell.

1 33. The method of claim 31 comprising contacting the cell with an  
2 effective amount of a polypeptide which comprises the amino acid sequence of SEQ ID  
3 NO:2 or a fragment thereof.

1 34. A method of inhibiting an immune response in a subject,  
2 comprising administering to the subject a therapeutically effective amount of an antibody  
3 which specifically binds a polypeptide having the sequence of SEQ ID NO:2.

1 35. A method of preventing or treating a CLASP-5-mediated disease  
2 comprising administering to a subject in need thereof a therapeutically effective amount  
3 of a pharmaceutical composition of claim 30.

1 36. The method claim 35, wherein the CLASP-5-mediated disease is  
2 an autoimmune disease.

3 therapeutically effective amount of a pharmaceutical composition of claim 30 to a  
4 subject.